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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,754	11/21/2003	Stan V. Lyons	M881.12-0017	1446
164	7590	06/02/2005	EXAMINER	
KINNEY & LANGE, P.A. THE KINNEY & LANGE BUILDING 312 SOUTH THIRD STREET MINNEAPOLIS, MN 55415-1002			JOHNSTON, PHILLIP A	
			ART UNIT	PAPER NUMBER
			2881	

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/718,754

Applicant(s)

LYONS ET AL.

Examiner

Phillip A. Johnston

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 March 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4-15,17 and 18 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,2,4-15,17 and 18 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

***Detailed Action***

1. This Office Action is submitted in response to an amendment filed 9-01-2004, wherein claims 3,16, and 19 have been previously cancelled. Claims 1,2,4-15,17, and 18 are pending.

***Claims Rejection – 35 U.S.C. 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

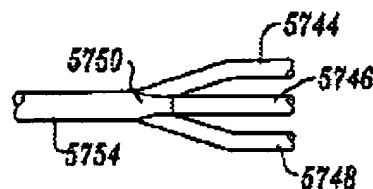
3. Claims 1,4-8,12-15,17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Pub. No. 2003/0129274 to Garwood, in view of Lyons, U.S. Patent No. 5,530,255.

Garwood (274) discloses a bulk material irradiation system that includes;

(a) An input for inserting ground meat; a bulk material tube connected to the input and forming a path for the ground meat to be transported (forced to flow through) between vessels with a pump; an irradiation assembly providing ionizing radiation to irradiate the bulk material passing adjacent to the irradiation assembly in the bulk material tube; and an output for irradiated bulk material to exit the bulk material tube, as recited in claims 1,6,9,12,14, and 17. See page 27, claim 18; and paragraphs [0136] and [0152];

(b) An electron beam directed directly at and through a stream of grinds while the grinds are passing through a tube, which is equivalent to penetrating the full thickness of the bulk material, as recited in claims 1,6,9,12,14, and 17. See paragraph [0152];

(c) The use of plural bulk material tubes 5744,5746, and 5748, as recited in claim 6. See paragraph [0153]; and Figure 19 below;



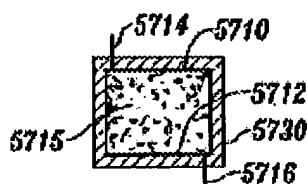
*Fig.19.*

(d) A port 1622 is provided at the apex of removable dome 1610 providing a port to inject gases and other substances such as O<sub>3</sub>, F<sub>2</sub>, H<sub>2</sub>O<sub>2</sub>, KmnO<sub>4</sub>, HClO, ClO<sub>2</sub>, O<sub>2</sub>, Br<sub>2</sub>, I<sub>2</sub>, or any combination thereof and flavors into or alternatively extract from within the pressure vessel through port 1622. Alternatively, a gas blend is injected into the pressure vessel through port 1622 and maintained at a pressure of about 25 psi. A gas blend including nitrogen and/or carbon dioxide and/or ozone (O<sub>3</sub>) will be provided into pressure vessel via port 1622. Water and oils contained in the ground meat can then absorb carbon dioxide until it becomes substantially saturated and cannot absorb any additional carbon dioxide. A controller to maintain and/or adjust and vary pressure of the gases within the pressure vessel, as desired, is also provided but not shown, as recited in claims 1 and 4. See paragraph [0128];

It is inherent in Garwood (274) that, keeping the pressure in the conduit at a selected level requires the use of a pressure sensor and a flow adjusting mechanism, as recited in claim 4.

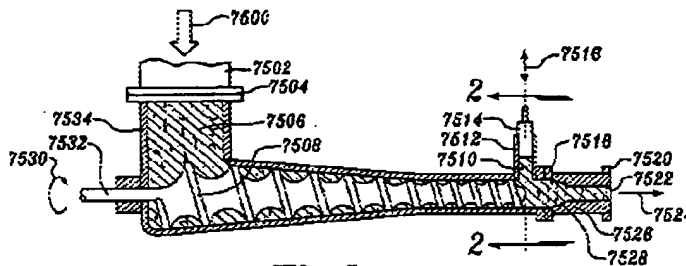
(e) Controlling the liquid contained in the ground beef, which is equivalent to the liquid bulk material, as recited in claim 15. See paragraph's [0063], [0114] and [0124] and;

(f) The fat content of each stream of ground beef can be measured, by any suitable measuring device such as that shown as 5730 in FIG. 17, and the fat content will therefore be known. The velocity of each stream of material can be adjusted by adjusting the speed of separate vane pumps arranged in such a manner so as to provide for velocity adjustment. By adjusting the velocity of each stream of processed material corresponding to the measured fat content contained therein, delivered quantities of the processed material, can be adjusted such that when any two or more streams are combined together, the resultant fat content of the combined stream will be substantially constant and as required. In this way, the known fat content of the combined stream of processed material can be maintained to within a narrow range of variation., as recited in claim 17. See Figure 17 below; and paragraph [0153].



***Fig.17.***

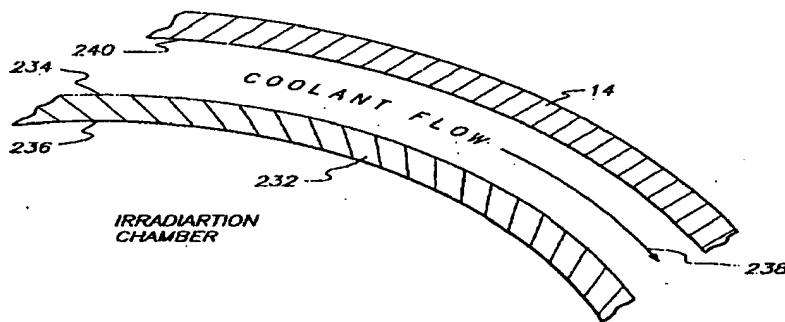
(g) The use of shaped conduits mounted on flange 7520 to provide a different profile and size of extruded streams of grinds pumped there through, which implies the use of an elliptically shaped bulk material tube, as recited in claims 12 and 14. See paragraph [0243]; and Figure 1 below.



**Fig. 1.**

Garwood (274) as applied above fails to teach the use of a gas flow path of claims 1 and 4, as well as specific design limitations of the irradiation region of the bulk material tube, as recited in claims 5,7,8, and 12-14. However, Lyons (255) discloses;

(a) An electron beam apparatus and method for reducing stresses on irradiation system windows that includes use of a gas (coolant) flow path between a primary window 14, and a secondary window 232, where the processing chamber is pressurized to maintain the shape of the second window, as recited in claims 1,4, and 14. See Column 26, line 62-67; Column 27, line 1-17; and Figure 20B below;



**FIG. 20B**

(b) The use of foil window 14 that is mounted between an upper flange structure 16 connected to or forming a part of the housing 12 and a detachable lower flange structure 18, which is equivalent to the use of a carrier frame, as recited in claim 5. See 16, line 3-12.

(c) An electron beam irradiation apparatus, used in applications involving exposure of the window to chemically hostile conditions, for example, high temperature liquids or corrosive fluids, it is especially advantageous to coat that side of the window in contact with the liquid or fluid to be processed with a chemically inert or anticorrosion heat resistant coating. Such coatings include thin layers of inert metals such as gold and the noble metals, nickel and the like; and abrasion resistant ceramic and or other oxide layers, for example, anodized surface coats and the like, as recited in claims 7 and 8. See Column 21, line 3-13.

It is important to point out that, the term "bulk material" as claimed is defined in paragraph [0089] of applicants published specification (U.S. Patent Pub. No. 2004/0113094), which states; Cylindrical tubes 16a-16d serve to contain bulk material such as liquids or solids that may be pumped through a pipe, such as ground beef.

Therefore it would have been obvious to one of ordinary skill in the art that the ground meat irradiation apparatus and method of Garwood (274) can be modified to use the bulk material tube of Lyons (255), to provide a transmission window that can greatly reduce the stresses caused by the pressure differential there-across during operation, thereby enabling use of highly electron transparent window foils in demanding operating conditions.

Garwood (274) and Lyons (255) disclose the claimed invention except for the use of a bulk material tube composed of titanium and a layer of stainless steel. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a bulk material tube composed of titanium and a layer of stainless steel, as recited in claim 8, since it have been held to be within the ordinary skill of worker in the art to select a known material on the basis of its suitability for the intended use. One would have been motivated to use a bulk material tube composed of titanium and a layer of stainless steel for the purpose of designing the irradiation treatment cavity capable of providing for both radiation and structural requirements, which Garwood (274) and Lyons (255) recognize. In re; Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945) The selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garwood (274) and Lyons (255) in view of McKeown, U.S. Patent No. 5,847,401.

The combination of Garwood (274) and Lyons (255) does not disclose irradiating the bulk material from two opposite sides, as recited in claim 2. However, McKeown (401) discloses an irradiation apparatus for delivering a charged particle beam on two sides of the material being irradiated. See Abstract.

Therefore it would have been obvious to one of ordinary skill in the art that the ground meat irradiation apparatus and method of Garwood (274) and Lyons (255) can be modified to use the dual beam path irradiation source of McKeown (401), to provide



uniform irradiation of the ground meat which can thus be sterilized.

5. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garwood (274), Lyons (255) and McKeown (401) and in further view of Kanter, U.S. Patent No. 4,757,201.

The combination of Garwood (274), Lyons (255) and McKeown (401) does not disclose the use of a dosimetry carrier, as recited in claims 9-11. However, Kanter (201) discloses a dosimetry carrier for monitoring the irradiation of bulk material, as recited in claims 9-11. See Abstract.

It is implied herein, that the use of plural entry and exit ports (for example 1322, 1608, and 1622, See paragraph's [0122], [0127], and [0128]) in accordance with Garwood (274) is equivalent to having dosimetry carrier entry and exit ports, as recited in claims 9-11.

Therefore it would have been obvious to one of ordinary skill in the art that the ground meat irradiation apparatus and method of Garwood (274), Lyons (255) and McKeown (401) can be modified to use the dosimetry carrier of Kanter (201), to monitor radiation incident within the bulk volume from a number of different directions in order to provide a more accurate indication of the average radiation dose.

### ***Conclusion***

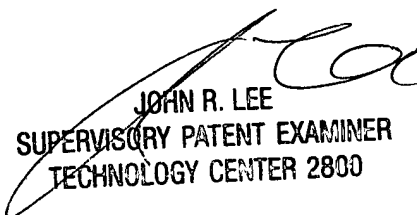
6. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (571) 272-2475. The examiner

can normally be reached on Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor John Lee can be reached at (571) 272-2477. The fax phone number for the organization where the application or proceeding is assigned is 703 872 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PJ

May 19,2005

  
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SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800